U. S. Mint, 12/-14—86.

Hon. D. M. Fox.
Superintendent.
Sir,

Our practice in refining Gold & Silver, is to refine one lot in each month, as we receive the Deposits for Refining only once in the month, and through circumstances the refining may be postponed. Thus. we have just finished refining the Deposits of August, and are just about refining those of Sept. — each in a separate lot.

We can give the amt. & cost of acid used in each Refining operation, — the wages of the 3 men employed chiefly in refining, — and through the Engineer we might roughly estimate the cost of heating by steam. The cost of melting the refined Gold & Silver can also be approximately estimated from the time, fuel, wear & tear, — at the melting furnace. But all these should be taken for a year's work, and distributed

in time (for month or week) by calculation.

The rate of cost, pr 1000 oz. gold or silver, can only be ascertained correctly for nearly or quite a year's work, and then calculated by distribution for any given time.

Respectfully
Jas C Booth
M & R

418 1/2.

U. S. Mint. Phila. Pa.

Dec. 14. 1886

James C. Booth.

Mint R.

In reference to refining Gold & Silver.

Encloses copy of letter from Director &c.

Recd Dec. 14. 1886.

(Copy)

Treasury Department,
Bureau of the Mint,
Washington D.C. December 13. 1886.

Sir,

Please inform me by the 26th of the present month, the amount collected for parting and refining charges (that is, all the charges except the alloy charges) from July 1st to the close of December 1886. estimating the amount from the date of your letter of transmittal to the end of December; and the expenses for the same, including the use of machinery, and wastage.

Please have this information in my possession by the 26th of the present month.

Very respectfully,
(Signed) Jas P. Kimball,
Director.

Hon Danl M. Fox,
Supt U. S. Mint,
Philadelphia.

Certified
H C Kinsley
Chief Clk

(Copy)

Treasury Department.
Bureau of the Mint,
Washington, D. C. December 13. 1886.

Sir.

Please inform me by the 26th of the present month, the amount collected for parting and refining charges, (that is, all the charges except the alloy charges) from July 1st to the close of December 1886, estimating the amount from the date of your letter of transmittal to the end of December; and the expenses for the same, including the use of machinery, and wastage.

Please have this information in my possession by the 26th of the present month.

Very respectfully,
(Signed) Jas. P. Kimball,
Director.

Hon. Dan'l M. Fox,
Supt U. S. Mint,
Philadelphia.

Certified
H C Hinson
Cashier

RG104 E-1 Box 143 Dec 1886

Copy

Approximate cost of Refining Gold & Silver.

Determined from the bar refined in November 1886. and from the Deposits of August 1886.

1. Melting Gold = 1 with 2 or 2½ Silver. Granulating &c. Fire and Crucibles. assumed. (?) $10.00
2. Made 28 Bars. Granulation. about 9 Pitchers no 5 to each Bar-Pitcher = 20 lbs. Bill for no 5 for Nov. 86. 4445 lbs. @ .04 $\frac{365}{}$ = $194.02.
3. Oil of Vitrol 2910 lbs @ .01 $\frac{0445}{}$ 30.41
4. One Load Salt 34 bush. @ .30 10.20
5. Fire (1 Box = 35 lbs) (5 Boxes = 175 lbs) 1 Cullenders 175 lbs. @ .08 3/8 14.65
6. Steaming Solution (?) 10.00
7. Melting Fire ars & ag (& fluxes) (?) 15.00
8. Wages of 3 for half the Month 104 + 75. 40 + 75. 40 = 254.80 $\frac{254.80}{2}$ 127.40

$411.68

RG104 E-1 Box 143 Dec 1886

Amt refined Gold 15.380 oz Standard. and 46.040 oz Silver. Since the sole object is refining Gold. all the cost should be thrown on the Gold.

Hence the cost of Refining the (15.380 oz. St. Gold) (= 13.842 pure Au) was just. 02 2/3 pr. oz. Standard, as near as can well be ascertained. If the Silver be estimated with the Gold. then there are 13.842 oz. pure Gold. and 41.436 oz. pure Silver = a total of 55.278 oz. of the two metals refined and pure.

In such case the cost of Refining the single oz of pure Metal is

$0.00 75 or 3/4 of one cent pr. oz.

(signed) Jas. C. Booth
Mg R.

Phila. 15th December. 1886.

RG104 E-1 Box 143 Dec 1886

Midhope 16. Dec. 1886

Mr D. M. Fox
Asstt. U. S. Mint, - Phila

Dear Sir,

I write you a few informal lines, as I failed to see you yesterday afternoon. As I was leaving the Mint the day before yesterday, you sent me a note from the Director, asking some questions in relation to refining in the Mint, which I answered informally & offhand, because I observed that the Director did not understand how we practised Refining Gold in the Mint. I told him, among other things, that we could not estimate the cost of refining for part of a month, because we refined all the deposits of a month, during another month, by an unbroken series of operations; — and also that we could not readily or accurately determine the costs of Refining, except by taking the average

RG104 E-1 Box 143 Dec 1886

of a series of months, say of a year.

Upon going home on Tuesday evening I kept revolving the subject in my mind, & couldn't shake it off all night. Hence, altho I had determined to begin a short holiday the next morning, I conceived a plan in my mind to ascertain the costs of Refining from the results of the Month we had just closed, i.e. the deposits of August-86, which we were refining during the whole of November.

I therefore forwent the beginning of my holiday the next morning (yesterday) and thought and worked out the whole yesterday, and wrote down the results for you, so that the Director might have some basis for his estimates or calculations whatever they might be.

I hope you will receive them with

RG104 E-1 Box 143 Dec 1886

due consideration of the difficulties I encountered. Still, I think the results are quite satisfactory; sufficiently so for the Director to consider as accurate enough for a whole year's estimate. I doubt whether they would be more exact, if an average of the whole year were taken.

Altho I need rest, yet if there be anything that need further explanation I will come in, & give it with much pleasure upon hint from you.

very truly yours
I. & C. Booth

Wilkesbarre. Pa.
Dec. 16. 1886.

Jas. C. Booth.

Relative to refining
Gold & Silver

RECEIVED
DEC 16 1886
U.S. MINT, PHILA.

RG104 E-1 Box 143 Dec 1886

Approximate cost of Refining Gold & Silver.

Determined from the lot refined in November 1886 and from the Deposits of August 1886

1 Melting Gold = 1 with 2 @ 2½ Silver, Granulating..
Fires and Crucibles, assumed, (?) $10.00

2. Made 28 Pots. Granulations.
about 9 Pitchers No 5 to each Pot. 1 Pitcher = 20 lbs
Bill for No 5 for Nov. 86. - 4445 lb. @ .04 $\frac{365}{}$ = $194.02

3. Oil of Vitriol 2910 lb @ .01 $\frac{045}{}$ 30.41

4. One load Salt. 34 bush. @ 30 10.20

5. Zinc (1 box = 35 lb.) (5 boxes = 175 lb) 1 Cullender
175 lbs. @ .08 $\frac{3}{8}$ 14.65

6. Steaming solution (?) 10.00

7. Melting fine Au. & Ag (& fluxes) (?) 15.00

8. Wages of 3 for half the Month
104 + 75.40 + 75.40 = 254.80 $\frac{254.80}{2}$ 127.40

$411.68

Amt. refined Gold 15,380. oz. Std. and 46,040. oz Silver. Since the sole object is refining Gold, all the cost should be thrown on the Gold. Hence the cost of Refining the (15,380. oz. Std. Gold) (= 13,842. pure Au.) was just .02 $\frac{2}{3}$ pr. oz. Standard, as near as can well be ascertained.

If the Silver be estimated with the Gold, then there are 13 842 oz. pure Gold, and 41,436 oz. pure silver. = a total of 55,278 oz. of the two metals refined and pure. In such case the cost of refining the single oz. of pure metal is

$0.0075 or $\frac{3}{4}$ of one cent. pr. oz.

J. A. C. Booth
M A R

Phila 15.th December, 1886.

U.S. Mint. Phila. Pa.

Dec.

James C. Booth.

M & R.

Approximate cost of Refining Gold & Silver.

NARA RG104, Entry 1, Box 143

[Letter One:]
[Abstract:] In reference to refining Gold & Silver…

U.S. Mint
December 12, 1886

Hon. D.M. Fox,
Superintendent.

Sir,

Our practice in refining Gold & Silver, is to refine one lot in each month, as we receive the Deposits for Refining only one in the month, and through circumstances the refining may be postponed. Thus, we have just finished refining the Deposits of August, and are just about refining those of Sept. – each in a separate lot.

We can give the amt. & cost of acid used in each Refinery operation, - the wages of the 3 men employed chiefly in refining, - and through the Engineer we might roughly estimate the cost of heating by steam. The cost of melting the refined gold & silver can also be approximately estimated from the time, fluxing, wear & tear, at the melting furnace. But all these should be taken for a year's work, and distributed in time (for a month or week) by calculation.

The rate of cost, pr 1000 oz. gold or silver, can only be ascertained correctly for nearly or quite a year's work, and then calculated by distribution for any given time.

Respectfully,
Jas. C. Booth
M & R

NARA RG104, Entry 1, Box 143

[Letter Two:]

(Copy)

Treasury Department,
Bureau of the Mint,
Washington, D.C.,
December 13, 1886

Sir,

Please inform me by the 26th of the present month, the amount collected for parting and refining charges (that is, all the charges except the alloy charges) from July 1st to the close of December 1886, estimating the amount from the date of your letter of transmittal to the end of December; and the expenses for the same, including the use of machinery, and wastage.

Please have this information in my possession by the 26th of the present month.

Very respectfully,
(Signed) Jas. P. Kimball
Director.

Hon. Danl. M. Fox,
Supt. U.S. Mint,
Philadelphia.

Certified
H.C. Hickok
Ch. H.C.H.

NARA RG104, Entry 1, Box 143

[Letter Three:]

(Copy)

Treasury Department,
Bureau of the Mint,
Washington, D.C.,
December 13, 1886

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Please inform me by the 26th of the present month, the amount collected for parting and refining charges (that is, all the charges except the alloy charges) from July 1st to the close of December 1886, estimating the amount from the date of your letter of transmittal to the end of December; and the expenses for the same, including the use of machinery, and wastage.

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Very respectfully,
(Signed) Jas. P. Kimball
Director.

Hon. Danl. M. Fox,
Supt. U.S. Mint,
Philadelphia.

Certified
H.C. Hickok
Ch. H.C.H.

NARA RG104, Entry 1, Box 143

[Letter Four:]

Copy.

Approximate cost of Refining Gold & Silver.

Determined from the lot refined in November 1886, and from the Deposits of August 1886.

1. Melting Gold = 1 with 2@ 2 ½ Silver, Granulating &c. Fires and Crucibles, assumed.	(?) $10.00
2. Made 28 Pobs. Granulations. About 9 Pitchers No. 5 to each Pob. Pitcher = Bill for No. 5 for Nov. 86. 4445 lbs. @ .04 365 =	 20 lbs. $194.02
3. Oil of Vitrol 2910 lbs. @ .01 045	30.41
4. One load salt 34 bush @ .30	10.20
5. Zinc (1 Box = 35 lbs.) (5 Boxes = 175 lbs.) 1 Cullender 175 lbs. @ .08 3/8	 14.65
6. Steaming Solution (?)	10.00
7. Melting fine ars & ag (& fluxer) (?)	15.00
8. Wages of 3 for half the Month 104 + 75.40 + 75.40 = 254.80 254.80/2	127.40
	$411.68

Amt. refined Gold 15,380 oz. Standard, and 46,040 oz. Silver. Since the sole object is refining Gold. All the cost should be thrown on the Gold.

Hence the cost of Refining the (15,380 oz. St. Gold) (= 13,842 pure arr) was just .02 2/3 pr. oz. Standard, as near as can well be ascertained. If the Silver be estimated with the Gold, then there are 13,842 oz. pure Gold, and 41,436 oz. pure Silver = a total of 55,278 oz. of the two metals refined and pure.

In such case the cost of Refining the single oz. of pure Metal is

$0.0075 or ¾ of one cent pr. oz.

(signed) Jas. C. Booth
M & R

Phila.
December 15, 1886

NARA RG104, Entry 1, Box 143

[Letter Five:]
[Abstract:] Relative to refining Gold & Silver.

Midhope
December 16, 1886

Mr. D.M. Fox
Supt. U.S. Mint – Phila.

Dear Sir,

I write you a few informal lines, as I failed to see you yesterday afternoon. As I was leaving the Mint the day before yesterday, you sent me a note from the Director, asking some questions in relation to refining in the Mint, which I answered informally & off hand, because I observed that the Director did not understand how we practiced Refining Gold in the Mint. I told him, among other things, that we could not estimate the cost of refining for part of a month, because we refined all the deposits of a month, during another month, by an unbroken series of operations; - and also that we could not readily or accurately determine the costs of Refining, except by taking the average of a series of months, say of a year.

Upon going home on Tuesday evening I kept revolving the subject in my mind, & couldn't shake it off all night. Hence, altho I had determined to begin a short holiday the next morning, I conceived a plan in my mind to ascertain the costs of Refining from the results of the Month we had just closed, i.e. the deposits of August '86, which we were refining during the whole of November.

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Altho I need rest, yet if there by anything that need of further explanation I will come in & give it with much pleasure upon hint from you.

Very truly yours,
Jas. C. Booth

NARA RG104, Entry 1, Box 143

[Letter Six:]
[Abstract:] Approximate cost of Refining Gold & Silver.

Approximate cost of Refining Gold & Silver.

Determined from the lot refined in November 1886 and from the Deposits of August 1886.

1. Melting Gold = 1 with 2@ 2 ½ Silver, Granulating &c. Fires and Crucibles, assumed.	(?) $10.00
2. Made 28 Pots. Granulations. About 9 Pitchers No. 5 to each Pot, 1 Pitcher = Bill for No. 5 for Nov. 86. 4445 lbs. @ .04 365 =	 20 lbs. $194.02
3. Oil of Vitrol 2910 lbs. @ .01 045	30.41
4. One load salt. 34 bush @ .30	10.20
5. Zinc (1 Box = 35 lbs.) (5 Boxes = 175 lbs.) 1 Cullender 175 lbs. @ .08 3/8	 14.65
6. Steaming Solution (?)	10.00
7. Melting fine An & Ag (& fluxes) (?)	15.00
8. Wages of 3 for half the Month 104 + 75.40 + 75.40 = 254.80 254.80/2	127.40
	$411.68

Amt. refined Gold 15,380 oz. Standard, and 46,040 oz. Silver. Since the sole object is refining Gold, all the cost should be thrown on the Gold. Hence the cost of Refining the (15,380 oz. St. Gold) (= 13,842. Pure An.) was just .02 2/3 pr. oz. Standard, as near as can well be ascertained.

If the Silver be estimated with the Gold, then there are 13842 oz. pure Gold, and 41,436 oz. pure silver = a total of 55,278 oz. of the two metals refined and pure. In such case the cost of refining the single oz. of pure metal is

$0.0075 or ¾ of one cent. pr. oz.

Jas. C. Booth
M & R

Phila.
December 15, 1886